PE Initial Processing of Evidence Items for DNA (Batch)

A. SCOPE

A.1 The Primary Examination Section will often perform the initial processing of items prior to their being transferred to the DNA Section for further analysis. Typically the initial process will consist of preparing swabs or cuttings of original evidence items that may contain biological material. This process differs from transferring secondary evidence items to DNA in that the swabs or cuttings are considered a work product of the DNA Section rather than evidentiary subsets of the original evidence item.

A.2 An attempt will be made to process a sufficient number of cases to create a batch size that is typical for the workflow of a DNA analyst (e.g. extraction sets of ten to fourteen samples that will maximize the use of 96 well plates).

B. QUALITY CONTROL

B.1 It is important that the processing of evidence samples be performed prior to (when possible) reference samples. This precaution is one step in helping to prevent potential cross contamination between evidence samples and reference samples.

B.2 Use disposable gloves at all times. Gloves must be changed, at a minimum, between the examinations of different items and may also be changed during the examination of a single item.

B.3 Clean cutting tools and forceps after every use with 70% ethanol and/or bleach based-cleaner, e.g. Clorox Bleach Germicidal Cleaner, or approved substitute

B.4 Use a clean cutting surface for each sample. Use sterile disposable microcentrifuge tubes.

B.5 Exposed work surfaces must be cleaned with a bleach based-cleaner, e.g. Clorox Bleach Germicidal Cleaner, or approved substitute between each item.

B.6 The Primary laboratory will be cleaned with a bleach-based cleaner, e.g. Clorox Bleach Germicidal Cleaner, an approved substitute or 70% ethanol where appropriate on a monthly basis to decontaminate the area.

B.7 Assign a lot# to a stock of deionized water to be utilized for the collection of biological material. Wet a swab as it would be wetted for sample collection and perform the entire DNA analysis procedure on this swab. The lot of deionized water will be useable for casework if no alleles are detected following DNA analysis. This lot may be utilized until consumed or the expiration date of one year is reached.

C. SAFETY

C.1 Treat all biological samples as potentially infectious. Gloves, a face mask, and a lab coat must be worn. Additionally, eye protection (e.g. safety glasses or a face shield) will be worn when appropriate.

C.2 Distinguish all waste as general, biohazard, sharps or glass and discard appropriately.

D. REAGENTS, STANDARDS, AND CONTROLS

D.1 70% ethanol (decontamination)

D.2 Bleach based-cleaner, e.g. Clorox Bleach Germicidal Cleaner, or approved substitute

E. EQUIPMENT AND SUPPLIES

E.1 Forceps

E.2 Scalpel blade

E.3 Scissors

E.4 Microcentrifuge tubes

E.5 Microcentrifuge tube racks

E.6 UV Cross Linker

E.7 Butcher paper

E.8 Kimwipes

E.9 Glassine paper

E.10 Permanent markers

F. PROCEDURES

F.1 Following evidence handling, examination, and case note procedures outlined in the Division Quality Assurance Manual (Section 4.13) and procedures in this Manual (1590) certain items of evidence will be processed prior to DNA analysis.

F.2 Identify areas of apparent and possible biological material.

F.3 If apparent blood or semen staining is present, presumptive testing should be conducted following protocols outlined in this manual (1595, 1598).

F.4 Label a microcentrifuge tube on the top and side with the Laboratory number and appropriate sample name at a minimum. The laboratory number and sample name must match the DNA extraction form (1798 or 5995).

F.5 Remove the possible biological material by cutting or swabbing and transfer the sample/a portion of the sample to the labeled microcentrifuge tube.

F.6 If deionized water is required for the collection of biological material, an amount sufficient only for use during the current day will be obtained by the analyst. The lot# and expiration date of the deionized water must be recorded in the notes.

F.7 Any remaining portion of the stain(s) or swab(s) that have been sampled for DNA analysis should be packaged with the parent item. This parent item should be returned to the submitting agency.

F.8 All reference samples will be returned to the submitting agency.

F.9 Place microcentrifuge tubes in order from suspected low to high amounts of DNA in a rack(s).

F.10 Label each rack with the appropriate batch designation, initials and type of extraction (e.g. differential, hair, straight – questioned, or reference).

F.11 If a microcentrifuge tube needs special attention (e.g. to be spun down prior to opening due to the nature of contents) attach a note to the rack stating the requirements for the DNA analyst.

F.12 If the sample name is ambiguous, clarifying information must be included for the DNA analyst.

F.13 Based on primary examination results, it may be desirable for the DNA analyst to create a microscopic slide for examination on a sample during the differential extraction. This information should be included on the relevant DNA submission and on the batch sheet.

F.14 Fill in the Primary Exam Batch Master Sample List form and place a copy in each case packet of the batch. Each sample listed on the original form will be signed off by the primary examination technical reviewer(s). Once complete, the form will be forwarded to the Biology Unit Supervisor to be included in each DNA submission from the batch.

F.15 Create a DNA submission for each case present in the batch. In the comments box include the batch name (e.g. BACBatch2.2015) and any known court date.

F.16 Ensure all relevant information the DNA analyst will require to complete their analysis (e.g. case synopsis, staffing notes, contact information of requestor, case correspondence, Sexual Assault Examination forms 2A and 2B and nurse evaluation form, if applicable) is present in the case correspondence.

F.17 Documentation for CODIS eligibility of any relevant samples must be present and if not already established is the responsibility of the primary examiner prior to transfer of the batch to a DNA analyst.

F.18 Upon completion of the technical review of a case included in the batch, the case packet will be submitted for administrative review.

F.19 Rack(s) containing the batch samples will be stored until assignment to a DNA analyst.

G. INTERPRETATION GUIDELINES

Not applicable

H. REFERENCES

H.1 Benzinger, E.A., Carnes, J.E., and Reich, A.K., "Simultaneous Latent Print Examination and DNA Profiling of Sealed Envelopes", *International Symposium on the Forensic Aspects of Latent Prints,* 1993, 24: 35 (note: this is a book)

H.2 Elliot, D.A., Lavis, A., Callaghan, K.S.N., Ferguson, K.J., Fleming, R.I., and Murphy, K.A., "The Effects of Fingerprinting Techniques on Blood Grouping and DNA Analysis", *International Symposium on the Forensic Aspects of Latent Prints,* 1993, 39: 50 (note: this is a book)

H.3 Gill, P., "The Utility of 'Substrate Controls' in Relation to 'Contamination', *Forensic Science International,* 1997, 85: 105 – 111

H.4 Kitchin, P.A., Szotyori, Z. Fromholc, C. and Almond, N., "Avoidance of False Positives", *Nature,* 1990, 344: 201

H.5 Kwok, S. and Higuchi, R., "Avoidance of False Positives with PCR", *Nature,* 1989, 339: 237 – 238

H.6 Pang, B.C.M. and Cheung, B.K.K., "Double Swab Technique for Collecting Touched Evidence," *Legal Medicine,* 2007, 9: 181-184

H.7 Sarkar, G. and Sommer, S.S., "Shedding Light on PCR Contamination", *Nature,* 1990, 343: 27